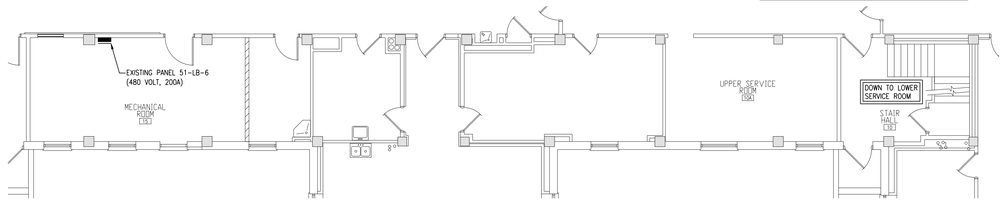
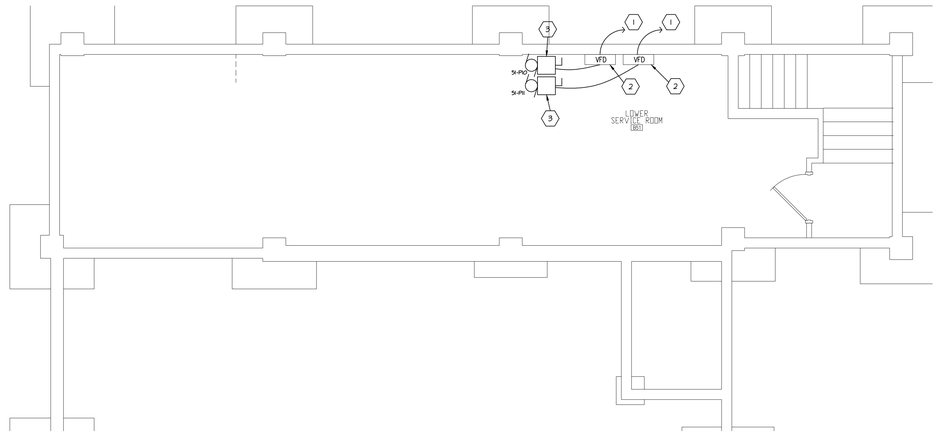
ELECTRICAL NOTES

1. PROVIDE (3) #12+#12G IN 3/4"C. TO PANEL 51-LB-6 (480 VOLT, 3-PHASE PANEL) IN MECHANICAL ROOM 15. PROVIDE 15A/3P CIRCUIT BREAKER IN PANEL TO FEED PUMP/VFD.
2. DIVISION 26 TO SET WIRE AND CONNECT VFD. VFD IS PROVIDED BY DIVISION 23.
3. PROVIDE 30A/3P NON-FUSED DISCONNECT AT MOTOR. PROVIDE UNI-STRUT FOR MOUNTING AS NECESSARY.



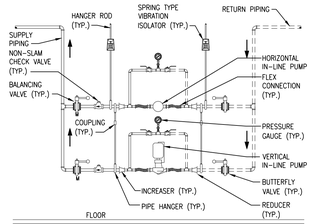
N 5 H1 FIRST FLOOR ELECTRICAL ROOM ELECTRICAL PLAN

SCALE: 1/8"=1'-0"



N 4 H1 BASEMENT ELECTRICAL ROOM ELECTRICAL PLAN

SCALE: 1/4"=1'-0"



NOTES:
1. VERIFY w/ MANUFACTURER'S INSTALLATION MANUAL WHETHER PUMPS ARE MOUNTED VERTICALLY OR HORIZONTALLY.
2. ENSURE PUMP INSTALLED ON TOP IS HIGH ENOUGH FOR ACCESS TO REMOVE PUMP BELOW.
3. SUPPORT PUMPS AS PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

6 H1 IN-LINE PUMPS DETAIL

NO SCALE

CIRCULATING PUMP (HVAC) SCHEDULE

UNIT NO.	LOCATION	CIRCULATING FLUID SYSTEM	FLUID	GPM	HEAD (FT.)	TEMP	SP. GR.	% EFF.	TYPE	MOTOR HP	VOLT	PH
51-P10	BASEMENT	HEATING	WATER	135	55	180	0.97	63	IL	5	480	3
51-P11	BASEMENT	HEATING	WATER	135	55	180	0.97	63	IL	5	480	3

NOTES:
1. ALL PUMPS SHALL BE VFD DUTY.
2. THE VFD FOR EACH PUMP SHALL BE SUPPLIED BY THE MECHANICAL CONTRACTOR. SEE SPEC SECTION 230511, 2.7 FOR MORE DETAILS.

HVAC PIPING NOTES:

A. CONTRACTOR SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO BEGINNING WORK AND NOTIFY THE ARCHITECT/ ENGINEER OF ANY DISCREPANCIES BETWEEN THE "AS-BUILT" CONDITIONS AND THESE DRAWINGS.

B. COORDINATE ALL HVAC PIPING INSTALLATION WITH GENERAL, PLUMBING, FIRE PROTECTION, VENTILATION, AND ELECTRICAL CONTRACTORS. INSTALL ALL HVAC PIPING AS HIGH AS POSSIBLE. PROVIDE ALL NECESSARY OFFSETS (DROPS AND RISES) TO KEEP HVAC PIPING TIGHT TO THE STRUCTURE OR DUCTWORK ABOVE. OFFSET HVAC PIPING TO AVOID BEAMS.

C. REFER TO AND COORDINATE WITH THE ARCHITECTURAL PLANS FOR CEILING TYPES, HEIGHTS, SOFFIT AREAS, AND ELEVATIONS FOR INSTALLATION OF NEW HVAC PIPING, EQUIPMENT, ETC.

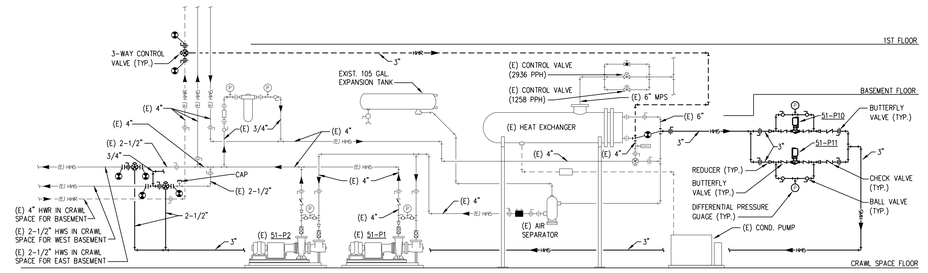
D. THIS CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND RE-INSTALLING OF EXISTING CEILING TILE NOT REMOVED BY THE GENERAL CONTRACTOR FOR THE INSTALLATION OF NEW HVAC PIPING, EQUIPMENT, ETC. VERIFY WITH ARCHITECTURAL PLANS FOR CEILING WORK BY THE GENERAL CONTRACTOR. ANY CEILING TILE OR GRID DAMAGED DURING CONSTRUCTION SHALL BE REPLACED WITH NEW BY THIS CONTRACTOR.

E. THIS CONTRACTOR SHALL OPEN ALL EXISTING WALLS AND/OR CEILINGS TO INSTALL NEW HVAC PIPING, EQUIPMENT, ETC. AS REQUIRED. PATCH WALLS AND/OR CEILINGS TO MATCH EXISTING.

F. MAINTAIN 3'-0" CLEAR SPACE IN FRONT OF ALL ELECTRICAL, CONTROL, AND ACCESS PANELS FOR ACCESSIBILITY.

G. ALL SHUT-OFF VALVES, CONTROL VALVES, STRAINERS, ETC... SHALL BE INSTALLED IN ACCESSIBLE CEILINGS. VALVES SHALL BE LOCATED NOT MORE THAN 2 FEET ABOVE ACCOUSTICAL CEILINGS.

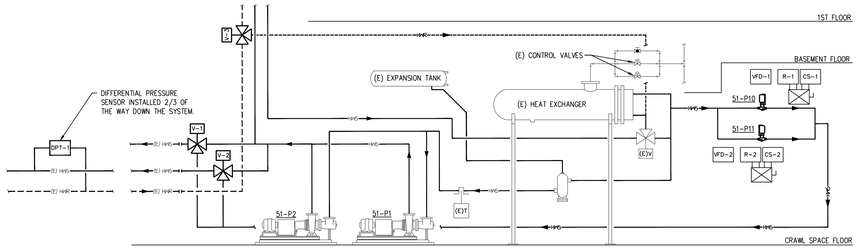
H. PROVIDE 1/2" DRAIN VALVE AT ALL LOW POINTS OF EACH SYSTEM TO ENABLE COMPLETE DRAINAGE. PROVIDE 1/2" VENT VALVES AT ALL HIGH POINTS OF EACH SYSTEM TO ENABLE COMPLETE VENTING.



2 H1 HEATING WATER PIPING SCHEMATIC

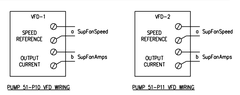
NO SCALE

Basement Heating Pump Operation: The heating pumps serving the basement heating units shall be activated when the outside air temperature is at 40 degrees (adjustable) or below. Before the pumps are activated, the 3-way valves shall be proven open to allow flow through the new basement pumps before operating. These pumps shall operate until the entire building is turned over to steam heat. At this point, the new basement pumps shall shut down and the 3-way valves shall open to allow flow through the heat exchanger and the existing building heating pumps. These valves shall be proven open before the existing pumps are started. The new basement heating pumps shall be operated with one pump in standby. If the primary pump is called to run and does not, a "Pump Failure" alarm at the operator's workstation shall be initiated and the back-up pump shall run. The pumps shall switch over operation every 1,000 hours. Provide a VFD for each pump and differential pressure sensor in the existing piping (2/3 of the distance in the system) to control the new pumps. Provide current sensors for each pump to verify operation.



POINT SCHEDULE

CONTROL DEVICE	POINT NAME	POINT DESCRIPTION	POINT TYPE AI	BI	AO	BO	ALARM HI	LOW	BIN	TOTALIZE
CS-1	PumpStatus	DISTRIBUTION PUMP STATUS		X					X	X
R-1	PumpCtrl	DISTRIBUTION PUMP CONTROL				X				
CS-2	PumpStatus	DISTRIBUTION PUMP STATUS		X					X	X
R-2	PumpCtrl	DISTRIBUTION PUMP CONTROL				X				
VFD-1 a	PumpSpeed	PUMP VFD SPEED			X					X
VFD-1 b	PumpAmps	PUMP AMPS	X				X			
VFD-2 a	PumpSpeed	PUMP VFD SPEED			X					X
VFD-2 b	PumpAmps	PUMP AMPS	X				X			
V-1	SupplyContValve	SUPPLY CONTROL VALVE		X		X				
V-2	SupplyContValve	SUPPLY CONTROL VALVE		X		X				
DPT-1	DiffPressSensor	DIFFERENTIAL PRESSURE SENSOR		X			X	X		
V-3	ReturnContValve	RETURN CONTROL VALVE		X		X				

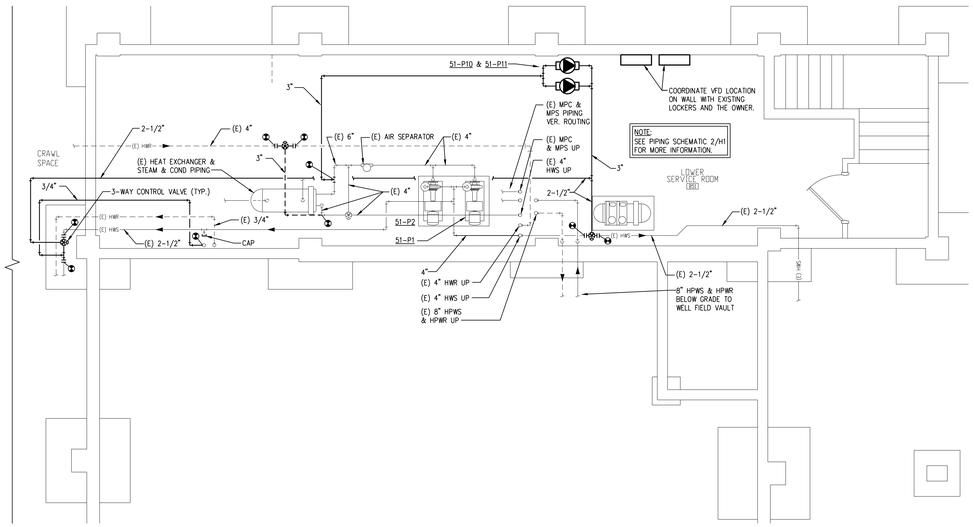


PUMP 51-P10 VFD WIRING

PUMP 51-P11 VFD WIRING

3 H1 HEATING SYSTEM CONTROL

NO SCALE



1 H1 BASEMENT MECHANICAL ROOM HVAC PIPING PLAN

SCALE: 1/4"=1'-0"

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No	REVISION	DATE

IMAGE GROUP INC., Architecture & Interiors
403 CENTER AVENUE, SUITE 300
MOORHEAD, MN 56560

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701.280.0550 • 701.775.2594 • 651.361.8728

I hereby certify that this plan specification, or report was prepared by me or under my direct supervision, and that I am duly Registered Engineer under the laws of the State of Minnesota.

Date 03/29/2012 Reg. No. 49528

APPROVED SERVICE LINE DIRECTOR DATE:		APPROVED INFECTION CONTROL NURSE DATE:	
APPROVED SERVICE LINE DIRECTOR DATE:		APPROVED PATIENT SAFETY DATE:	
APPROVED PROJECTS SECTION MANAGER DATE:		APPROVED CHIEF OF POLICE DATE:	
APPROVED DIRECTOR FMS DATE:		APPROVED SAFETY MANAGER DATE:	
APPROVED CHIEF OF STAFF DATE:			
APPROVED MEDICAL CENTER DIRECTOR DATE:			

DRAWING TITLE: HVAC PIPING PLAN, HEATING WATER PIPING SCHEMATIC, HEATING SYSTEM CONTROL DIAGRAM, AND ELECTRICAL PLANS

PROJECT TITLE: CORRECT HEATING, BUILDING 51 BASEMENT

BUILDING No 51 | CHECKED BY JP/AN | DRAWN MW

LOCATION: VA MEDICAL CENTER ST.CLOUD, MN 56303

DATE: MARCH 29, 2012
SEE SPECIFICATIONS: SEE DRAWING
PROJECT NO.: 656-12-
CAD FILE:
DRAWING NO.: H1 DWG. 2 OF 2

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